

Application No. 10/625,315

Claim Amendments:

1. (currently amended) A method of providing multiple scaled versions of a representation of an object in a computer graphics system:
providing a 3D computer graphic object;
rendering ~~a~~the 3D computer graphic object to a 2D texture map; and
creating a set of sequentially varying scaled resolution versions of the 2D texture map representative of the 3D computer graphic object rendered to the 2D texture map at corresponding predetermined viewing distances.
2. (currently amended) The method of claim 1, further comprising blending at least two sequentially adjacent versions to provide an anti-aliased representation of the object at a corresponding predetermined viewing distances.
3. (original) The method of claim 1, wherein an updated representation of the object is provided when a viewing angle of the object changes or lighting on the object changes.
4. (original) The method of claim 1, wherein blending further comprises trilinear filtering.
5. (original) The method of claim 1, further comprising rendering the 3D computer graphic object to a 2D texture map at a resolution greater than the resolution of the 3D computer graphic object.
6. (original) The method of claim 1, further comprising rendering the 3D computer graphic object to a 2D texture map at a resolution of 256 by 256 texels.

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7. (original) The method of claim 1, further comprising:
applying at least one of the scaled resolution versions to a single polygon;
and
rendering the polygon to a display device.

8. (currently amended) The method of claim 1, wherein the 3D computer graphic object comprises object color values and object alpha values and the 2D texture map comprises texture color values, the step of rendering further comprisescomprising:

internally rendering, in a first pass, the 3D computer graphic object to a the 2D texture map using the object color values and the object alpha values of the 3D computer graphic object, and the texture color values of the 2D texture map to generate initially rendered alpha values and initially rendered color values; and

internally re-rendering, in a second pass, the 3D computer graphic object to a 2D texture map to overwrite the initially rendered alpha values rendered in the first pass, with corrected alpha values so that translucent features of the 3D object are more accurately represented in the 2D texture map.

9. (original) The method of claim 8, further comprising assigning an alpha value of zero (0) to the 2D texture map.

10. (currently amended) The method of claim 8, further comprising:
selecting maximum color values of the initially rendered color values rendered in the first pass; and
using, in the second pass, the maximum color values to overwrite the initially rendered color values internally rendering, in a second pass, the 3D computer graphic object to a 2D texture map with the maximum color values.

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11. (original) The method of claim 10, wherein the maximum color value is selected according to the formula:

$$C = \text{MAX}(Cs, Cd);$$

where C represents the maximum color value drawn to each texel in the texture map, Cs represents the color value of the 3D computer graphic object, Cd represents the color value of the 2D texture map, and the function MAX determines the maximum of Cs and Cd .

12. (original) The method of claim 8, wherein the step of internally rendering, in a first pass, is performed according to the formula:

$$C = As * Cs + (1-As) * Cd;$$

where C represents the final color drawn to the 2D texture map, As represents the alpha value corresponding to the 3D object, Cs represents the color value of the 3D computer graphic object, and Cd represents the color value of the 2D texture map.

13. (currently amended) A method of anti-aliasing a computer graphics imposter comprising:

providing a 3D computer graphic object;

creating an imposter of an 3D computer graphic object by rendering the 3D object to a 2D texture map;

creating MIP maps for the imposter; and

blending the MIP maps to provide an anti-aliased imposter.

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14. (currently amended) A method of preserving translucency in a computer graphics imposter comprising:

providing a 3D computer graphic object;

internally rendering, in a first pass, at the 3D computer graphic object to a 2D texture map using color values and alpha values corresponding to the 3D computer graphic object, and color values corresponding to the 2D texture map; and

internally re-rendering the 3D computer graphic object to a 2D texture map to overwrite alpha values rendered in the first pass with corrected alpha values so that translucent features of the 3D object are more accurately represented in the 2D texture map.

15. (original) A computer graphics generator apparatus comprising:

a rasterizer for rendering a 3D computer graphic object to a 2D texture map; and

a texture mapper for creating sequentially varying scaled resolution versions of the 2D texture map representative of the object at corresponding predetermined viewing distances.

16. (original) A computer graphics system comprising:

a host computer;

the computer graphics generator apparatus card comprising a rasterizer for rendering a 3D computer graphic object to a 2D texture map, and a texture mapper for creating sequentially varying scaled resolution versions of the 2D texture map representative of the object at corresponding predetermined viewing distances; and

a host interface for coupling the computer graphics generator apparatus card to the host computer.